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10/622,355

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Ilia Vitsnudel

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EXAMINER

PERUNGAVOOR, SATHYANARAYA V

ART UNIT

PAPER NUMBER

2624

MAIL DATE

DELIVERY MODE

10/22/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/622,355

Applicant(s)

VITSNUDEL ET AL.

Examiner

Sath V. Perungavoor

Art Unit

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 September 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 14-21 is/are allowed.
- 6) ☒ Claim(s) 1-4,8,9 and 11-13 is/are rejected.
- 7) ☒ Claim(s) 5-7 and 10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

Applicant(s) Response to Official Action

- [1] The response filed on September 11, 2007 has been entered and made of record.

Response to Arguments

- [2] Presented arguments have been fully considered, but some are rendered moot in view of the new ground(s) of rejection necessitated by amendment(s) initiated by the applicant(s).

Claim Rejections - 35 USC § 103

Summary of Arguments:

Regarding claim 9, applicant argues the following:

1. Applicant's method differs from the prior art in that it uses a combination mask to compensate for the motion [page 9, para. 3].

Regarding claims 11-13, applicant argues the following:

1. Applicant's method differs from the prior art in that motion is treated locally only on pixels detected while preserving WDR in pixels where no motion was detected [page 10, para. 1].

Applicant requests the withdrawal of the rejection.

Examiner's Response:

Examiner respectfully disagrees.

Regarding claims 9 and 11-13, Examiner contends the following:

1. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification,

limitations from the specification are not read into the claims. See *In re Van Geuns*, 988

F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Accordingly, Examiner maintains the rejection.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

[3] Claims 1, 2, 8 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Ikeda¹ et al. (“Ikeda”).

Regarding claim 1, Ikeda meets the claim limitations, as follows:

A method for enhancing wide dynamic range in images [fig. 33], the method comprising: acquiring at least two images (*i.e. image I and image II*) of a scene to be imaged, the images acquired using different exposure times (*i.e. proper and excessive*) [figs. 2A-2C and 33; col. 8, ll. 3-6]; constructing for a first image (*i.e. image II*) of said at least two images (*i.e. image I and image II*) an illumination mask (*i.e. N2*) comprising a set of weight values distinctively identifying respective areas of pixels of high or low illumination, over-exposed or underexposed with respect to a predetermined threshold illumination value (*i.e. level of 330*), assigning one of the weight values (*i.e. 1 or 0*) to each pixel, whereas other weight values (*i.e. 0 or 1*) are assigned to other

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pixels of the other of said at least two images [figs. 2A-2C and 36A-36B; col. 28, ll. 20-30 and 40-45]; using a spatial low-pass filter (*i.e. cosine curve ratio of change weights pixels, hence acts as a spatial low pass filter*) to smooth border zones between pixels of one weight value (*i.e. 1 or 0*) and pixels of other weight values (*i.e. 0 or 1*), thus assigning pixels in the border zones new weight values in a range between the weight values [figs. 2A-2C and 36A-36B; col. 28, ll. 20-30 and 40-45]; and constructing a combined image using image data of pixels assigned with one weight value (*i.e. 1*) of the first image (*i.e. image II*) and image data of pixels assigned with other weight values (*i.e. 0*) of the other (*i.e. image I*) of said at least two images and in pixels corresponding to the border zones (*i.e. transition zones*) using image data from said at least two images proportional to the new weight values [fig. 36A and 36B; col. 28, ll. 20-30].

Regarding claim 2, Ikeda meets the claim limitations, as follows:

The method of claim 1, wherein the weight values are binary values (*i.e. 0 or 1*) [fig. 36A and 36B; col. 28, ll. 20-30].

Regarding claim 8, Ikeda meets the claim limitations, as follows:

The method of claim 1, for color imaging, wherein the steps of claim 1 are carried out separately for each color plane [col. 26, ll. 36-45].

Regarding claim 9, Ikeda meets the claim limitations, as follows:

The method of claim 1, further comprising: detecting (*i.e. slightly different*) pixels in said at least two images indicative of motion by comparing corresponding image data

from said at least two images [col. 27, ll. 15-23]; and evaluating image data value (*i.e.* $IN(1)*N1 \dots$) for pixels identified as indicative of motion using image data from one of said at least two images and using the image data value in constructing the combined image [col. 28, ll. 20-30].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

[4] Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeda in view of Smithⁱⁱ et al. ("Smith").

Regarding claim 3, Ikeda meets the claim limitations as set forth in claim 1.

Ikeda does not explicitly disclose the following claim limitations:

The method of claim 1, wherein the acquired images are in JPEG format, the JPEG format including a DCT transform domain.

However, in the same field of endeavor Smith discloses the deficient claim limitations; as follows:

The method of claim 1, wherein the acquired images are in JPEG format, the JPEG format including a DCT transform domain [page 2, para. 1].

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It would have been obvious to one with ordinary skill in the art at the time of invention to modify the teachings of Ikeda with Smith to have images in JPEG format, the motivation being reduction in storage [page 1, para. 2].

Regarding claim 4, Smith meets the claim limitations, as follows:

The method of claim 3, wherein the step of constructing the combined image is carried out in the DCT transform domain [page 4, para. 2].

[5] Claims 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeda in view of Kosekiⁱⁱⁱ et al. ("Koseki").

Regarding claim 11, Ikeda meets the claim limitations as set forth in claim 9.

Ikeda does not explicitly disclose the following claim limitations:

The method of claim 9, wherein the step of constructing a combined image includes using for pixels identified as indicative of motion only image data from one of said at least two images.

However, in the same field of endeavor Koseki discloses the deficient claim limitations, as follows:

The method of claim 9, wherein the step of constructing a combined image includes using for pixels identified as indicative of motion (*i.e. motion is detected*) only image data from one (*i.e. long exposure image*) of said at least two images [col. 13, ll. 19-28].

It would have been obvious to one with ordinary skill in the art at the time of invention to modify the teachings of Ikeda with Koseki to use only long exposure images and not

perform combining of long and short exposure images, the motivation being to prevent an incorrectly combined image from being output [col. 13, ll. 19-28].

Regarding claim 12, Koseki meets the claim limitations, as follows:

The method of claim 11, wherein the image data from one (*i.e. short exposure image*) of said at least two images is reconstructed (*i.e. multiplied by a ratio*) to simulate corresponding pixels in the other (*i.e. long exposure image*) of said at least two images [col. 12, ll. 47-51].

Regarding claim 13, Koseki meets the claim limitations, as follows:

The method of claim 12, wherein image data from one of said at least two images which was acquired with longest exposure time is incorporated in two illumination masks [col. 13, ll. 19-28].

Allowable Subject Matter

[6] Claims 5-7 and 10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

[7] Claims 14-21 are allowed.

Conclusion

[8] Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

[9] Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mr. Sath V. Perungavoor whose telephone number is (571) 272-7455. The examiner can normally be reached on Monday to Friday from 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Matthew C. Bella whose telephone number is (571) 272-7778, can be reached on Monday to Friday from 9:00am to 5:00pm. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

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applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dated: October 15, 2007

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ⁱ US 6,204,881 B1

ⁱⁱ NPL document titled "A Survey of Compressed Domain Processing Techniques" which incorporates by reference "Algorithms for Manipulating Compressed Images".

ⁱⁱⁱ US 7,098,946 B1



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